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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/747,703

12/29/2003

Herbert Brunner

12406-12001 / P2001,0463

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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 09/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/747,703

Applicant(s)

BRUNNER ET AL.

Examiner

Alexander O. Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2006 and 28 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-86 is/are pending in the application.
- 4a) Of the above claim(s) 4-6,8-13 and 16-86 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/7/06 & 1/27/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Serial Number: 10/747703 Attorney's Docket #: 12406-1200001/P2001,0463USN
Filing Date: 12/29/2003; foreign priority to 6/29/2001

Applicant: Brunner et al.

Examiner: Alexander Williams

This application is a continuation of application # PCT/DE02/01514, filed 4/25, 2002.

Applicant's Amendment filed 6/28/06 and 2/22/06 to the election with traverse of species I (claims 1, 2, 3, 7, 14 and 15), filed 10/5/05, has been acknowledged. Applicant's amendment has added to the claims several non-elected species elements into the claim structure for continued prosecution of this application.

This application contains claims 4-6, 8-13 and 16-86 drawn to an invention non-elected with traverse.

Claim 3 has been cancelled.

Claims 1, 3, 7, 14 and 15 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear and confusing to what is meant by and what shows "a leadframe and a radiation-emitting chip mounted on said leadframe; a molding material encasing said leadframe and said radiation-emitting chip and **having a shape defining a mounting surface of the component.**" What has a shape defining a mounting surface of the component? Also, it is unclear and confusing to what is meant by and what shows "said leadframe having leadframe

connections protruding out of said molding material and having connection surfaces enclosing a second predetermined angle having a value lying within a range from 70 degrees to 90 degrees with said mounting surface." Where are the claimed connection surfaces enclosing a second predetermined angle with what mounting surface of what?

Any of claims 1, 3, 7, 14 and 15 not specifically addressed above are rejected as being dependent on one or more of the claims which have been specifically objected to above.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 7, 14 and 15, **insofar as they can be understood**, are rejected under 35 U.S.C. § 102(e) as being anticipated by Roberts et al. (U.S. Patent Application Publication # 2003/0168670 A1).

1. Roberts et al. (figures 1 to 16) specifically figures 3 and 15 show a surface-mounting radiation-emitting component, comprising: a leadframe **14,16 (in figure 15,14,16a,16b)** and a radiation-emitting chip **35** mounted on said leadframe; a molding material **30** encasing said leadframe and said radiation-emitting chip and having a shape defining a mounting surface of the component, said mounting surface extending at a first predetermined angle having a value lying within a range from 0 degrees to 20 degrees relative to a main emission direction of the component **(Note: by including the 0 degrees refer that range can be 0 degrees relative to a main emission direction of the component)**, said molding material having a shape defining a curved surface **(12, top surface of 30)** in the main emission direction; said leadframe having leadframe connections protruding out **(leadframe protrudes out of the bottom surface of 22)** of said molding material and having connection surfaces

enclosing a second predetermined angle having a value lying within a range from 70 degrees to 90 degrees with said mounting surface.

2. The component according to claim 1, Roberts et al. show wherein said leadframe connections, viewed from said mounting surface, are led laterally out of said molding material.

7. The component according to claim 1, Roberts et al. show wherein said leadframe connections extend up to a mounting plane defined by said mounting surface.

14. The component according to claim 1, Roberts et al. show wherein said radiation-emitting chip contains a compound selected from the group consisting of GaN, InGaN, AlGaN, InAlGaN, ZnS, ZnSe, CdZnS and CdZnSe.

15. The component according to claim 1, Roberts et al. show wherein said radiation-emitting chip is configured to emit radiation selected from the group consisting of visible light, infrared radiation, and ultraviolet electromagnetic radiation.

Claims 1, 2, 7, 14 and 15, insofar as they can be understood, are rejected under 35 U.S.C. § 102(b) as being anticipated by Sano et al. (U.S. Patent # 6,472,765 B1).

1. Sano et al. (figures 1 to 4) specifically figure 1 show a surface-mounting radiation-emitting component, comprising: a leadframe **1,2** and a radiation-emitting chip **3** mounted on said leadframe; a molding material **11** encasing said leadframe and said radiation-emitting chip and having a shape defining a mounting surface of the component, said mounting surface extending at a first predetermined angle having a value lying within a range from 0 degrees to 20 degrees relative to a main emission direction of the component **(Note: by including the 0**

degrees refer that range can be 0 degrees relative to a main emission direction of the component), said molding material having a shape defining a curved surface (**top surface of 11**) in the main emission direction; said leadframe having leadframe connections protruding out (**leadframe protrudes out of the bottom surface of 10**) of said molding material and having connection surfaces enclosing a second predetermined angle having a value lying within a range from 70 degrees to 90 degrees with said mounting surface.

2. The component according to claim 1, Sano et al. show wherein said leadframe connections, viewed from said mounting surface, are led laterally out of said molding material.

7. The component according to claim 1, Sano et al. show wherein said leadframe connections extend up to a mounting plane defined by said mounting surface.

14. The component according to claim 1, Sano et al. show wherein said radiation-emitting chip contains a compound selected from the group consisting of GaN, InGaN, AlGaN, InAlGaN, ZnS, ZnSe, CdZnS and CdZnSe.

15. The component according to claim 1, Sano et al. show wherein said radiation-emitting chip is configured to emit radiation selected from the group consisting of visible light, infrared radiation, and ultraviolet electromagnetic radiation.

Claims 1, 2, 7, 14 and 15, **insofar as they can be understood**, are rejected under 35 U.S.C. § 102(e) as being anticipated by Maeda et al. (U.S. Patent Application Publication # 2002/0028527 A1).

1. Maeda et al. (figures 1 to 15b) specifically figures 8 show a surface-mounting radiation-emitting component, comprising: a leadframe **60A, 60B** and a radiation-emitting chip **5** mounted on

said leadframe; a molding material **63A** encasing said leadframe and said radiation-emitting chip and having a shape defining a mounting surface of the component, said mounting surface extending at a first predetermined angle having a value lying within a range from 0 degrees to 20 degrees relative to a main emission direction of the component (**Note: by including the 0 degrees refer that range can be 0 degrees relative to a main emission direction of the component**), said molding material having a shape defining a curved surface (**top surface of 63A**) in the main emission direction; said leadframe having leadframe connections protruding out (**leadframe protrudes out of the bottom surface of 63A**) of said molding material and having connection surfaces enclosing a second predetermined angle having a value lying within a range from 70 degrees to 90 degrees with said mounting surface.

2. The component according to claim 1, Maeda et al. show wherein said leadframe connections, viewed from said mounting surface, are led laterally out of said molding material.

7. The component according to claim 1, Maeda et al. show wherein said leadframe connections extend up to a mounting plane defined by said mounting surface.

14. The component according to claim 1, Maeda et al. show wherein said radiation-emitting chip contains a compound selected from the group consisting of GaN, InGaN, AlGaN, InAlGaN, ZnS, ZnSe, CdZnS and CdZnSe.

15. The component according to claim 1, Maeda et al. show wherein said radiation-emitting chip is configured to emit radiation selected from the group consisting of visible light, infrared radiation, and ultraviolet electromagnetic radiation.

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Claims 1, 3, 7, 14 and 15, **insofar as they can be understood**, are rejected under 35 U.S.C. § 102(b) as being anticipated by Hohn et al. (U.S. Patent # 6,066,861).

1. Hohn et al. (figures 1 to 8) specifically figure 4 show a surface-mountable radiation-emitting component, comprising: a leadframe **1,16,2** and a radiation-emitting chip **1,7** mounted on said leadframe; a molding material **5,10** encasing said leadframe and said radiation-emitting chip and having a shape defining a mounting surface of the component, said mounting surface extending at a first predetermined angle having a value lying within a range from 0 degrees to 20 degrees relative to a main emission direction of the component **(Note: By including the 0 degrees refer that range can be 0 degrees relative to a main emission direction of the component)**, said molding material having a shape defining a curved surface **(top surface of 10)** in the main emission direction; said leadframe having leadframe connections protruding out **(leadframe protrudes out of the bottom surface of 10)** of said molding material and having connection surfaces enclosing a second predetermined angle having a value lying within a range from 70 degrees to 90 degrees with said mounting surface.

(62) To improve the mixing of the radiation emitted by an electroluminescing semiconductor body with the radiation converted by the luminous substance and thus to improve the homogeneity of color of the light emitted by the component, in an advantageous feature of the casting composition according to the invention a blue-luminescing colorant, which attenuates a so-called directional characteristic of the radiation emitted by the semiconductor body. The term "directional characteristic" is understood to mean that the radiation emitted by the semiconductor body has a preferential emission direction.

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(6) FIG. 3 illustrates a particularly advantageous and preferred embodiment of the invention. The first and second electrical terminals 2, 3 are embedded in an opaque, and optionally prefabricated, basic housing 8 that has a recess 9. The term "prefabricated" is understood to mean that the basic housing 8 is already finished at the terminals 2, 3, for instance by means of injection molding, before the semiconductor body is mounted on the terminal 2. The basic housing 8, by way of example, is formed of opaque plastic, and in terms of its form the recess 9 is embodied as a reflector 17 for the radiation emitted by the semiconductor body in operation (the reflection optionally being achieved by means of suitable coating of the inside walls of the recess 9). Such basic housings 8 are used in particular for LEDs that are surface-mounted on printed circuit boards. They are applied, before mounting of the semiconductor body, to a conductor strip (lead frame) that has the electrical terminals 2, 3, the application for instance being done by injection molding.

(13) FIGS. 6-8 illustrate emissions spectra. FIG. 6 refers to a semiconductor body that emits blue light (luminescence maximum at λ ..about.430 nm) and FIGS. 7 and 8 refer to semiconductor components that emit white light. In each case, the wavelength λ is plotted in nm on the abscissa, and a relative electroluminescence (EL) intensity is plotted on the ordinate.

(14) Of the radiation emitted by the semiconductor body in FIG. 6, only some is converted into a longer-wavelength range, so that white light is created as the mixed color. The dashed line 30 in FIG. 7 represents an emissions spectrum of a semiconductor component which emits radiation comprising two complementary wavelength ranges (blue and yellow) and thus emits combined white light. The emissions spectrum here has one maximum each at wavelengths between approximately 400 and approximately 430 nm (blue) and between approximately 550 and 580 nm (yellow). The solid line 31 represents the emissions spectrum of a semiconductor component that mixes the color white from three wavelength ranges (additive color triad comprising blue, green and red). The emissions spectrum here has one maximum each for the wavelengths of approximately 430 nm (blue), approximately 500 nm (green) and approximately 615 nm (red).

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2. The component according to claim 1, Hohn et al. show wherein said leadframe connections, viewed from said mounting surface, are led laterally out of said molding material.

7. The component according to claim 1, Hohn et al. show wherein said leadframe connections extend up to a mounting plane defined by said mounting surface.

14. The component according to claim 1, Hohn et al. show wherein said radiation-emitting chip contains a compound selected from the group consisting of **GaN**, InGaN, AlGaN, InAlGaN, ZnS, ZnSe, CdZnS and CdZnSe.

FIG. 6 is a graph of an emission spectrum of a semiconductor body that emits blue light, with a layer sequence on the basis of GaN;

15. The component according to claim 1, Hohn et al. show wherein said radiation-emitting chip is configured to emit radiation selected from the group consisting of visible light, infrared radiation, and ultraviolet electromagnetic radiation.

Claims 1, 2, 7, 14 and 15, insofar as they can be understood, are rejected under 35 U.S.C. § 102(b) as being anticipated by Reeh et al. (U.S. Patent # 6,576,930 B2).

1. Reeh et al. (figures 1 to 14) specifically figure 4 show a surface-mounting radiation-emitting component, comprising: a leadframe **2,16,3** and a radiation-emitting chip **1** mounted on said leadframe; a molding material **10** encasing said leadframe and said radiation-emitting chip and having a shape defining a mounting surface of the component, said mounting surface extending at a first predetermined angle having a value lying

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within a range from 0 degrees to 20 degrees relative to a main emission direction of the component (**Note: by including the 0 degrees refer that range can be 0 degrees relative to a main emission direction of the component**), said molding material having a shape defining a curved surface (**top surface of 10**) in the main emission direction; said leadframe having leadframe connections protruding out (**leadframe protrudes out of the bottom surface of 10**) of said molding material and having connection surfaces enclosing a second predetermined angle having a value lying within a range from 70 degrees to 90 degrees with said mounting surface.

2. The component according to claim 1, Reeh et al. show wherein said leadframe connections, viewed from said mounting surface, are led laterally out of said molding material.

7. The component according to claim 1, Reeh et al. show wherein said leadframe connections extend up to a mounting plane defined by said mounting surface.

14. The component according to claim 1, Reeh et al. show wherein said radiation-emitting chip contains a compound selected from the group consisting of GaN, InGaN, AlGaIn, InAlGaIn, ZnS, ZnSe, CdZnS and CdZnSe.

15. The component according to claim 1, Reeh et al. show wherein said radiation-emitting chip is configured to emit radiation selected from the group consisting of visible light, infrared radiation, and ultraviolet electromagnetic radiation.

Response

Applicant's arguments filed 2/22/06 and 6/28/06 have been fully considered, but are moot in view of the new grounds of rejections detailed above.

As to Applicant's arguments in reference to Reeh et al. and Hohn et al. they are not found to be persuasive. With the claim language by **Applicant including**

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the 0 degrees to 20 degrees refer that range can be 0 degrees relative to a main emission direction of the component. Applicants claim language of "said leadframe having leadframe connections protruding out of said molding material and having connection surfaces enclosing a second predetermined angle having a value lying within a range from 70 degrees to 90 degrees with said mounting surface" cause for the leadframe connections to protrude out of area of the molding material and just the connection surfaces or any portion of the leadframe connection portion can have a value lying within a range from 70-90 degrees with said mounting surface. Note it is unclear and confusing to what mounting surface of what is being referred too. Applicant's arguments states that "Applicant's component also includes a leadframe whose components protrude from the sides of the molding encasing. The plane of the leadframe thus defines an angle of 70-90 degrees with respect to the mounting surface of the molding encasing" is not found to be persuasive. Applicant's claim states "said leadframe having **leadframe connections protruding out said molding material** and having connection surfaces enclosing a second predetermined angle having a value lying within a range from 70 degrees to 90 degrees with said mounting surface. Applicant claim of "leadframe connections protruding out said molding material" is not the same of Applicant's arguments stating "a leadframe whose components protrude from the sides of the molding encasing."

The insertion of Applicant's additional claimed language, for example, "in claim 1" cause for further search and consideration to make this action final.

Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION

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FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

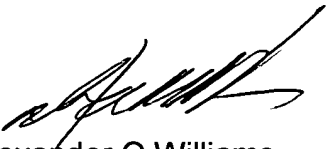
The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/99,100,81,89,603,103,788 313/486,467,512,498,113 372,45,46,43, 252/301.36 250/552	10/30/05 7/29/06 9/3/06
Other Documentation: foreign patents and literature in 257/99,100,81,89,603,103,788 313/486,467,512,498,113 372,45,46,43, 252/301.36 250/552	10/30/05 7/29/06 9/3/06
Electronic data base(s): U.S. Patents EAST	10/30/05 7/29/06 9/3/06

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O. Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30AM-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander O Williams
Primary Examiner
Art Unit 2826

AOW
9/3/06